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10/753,276

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David L. Collins

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EXAMINER

DUDEK JR, EDWARD J

ART UNIT

PAPER NUMBER

2186

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
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3 MONTHS

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/753,276

Applicant(s)

COLLINS, DAVID L.

Examiner

Edward J. Dudek

Art Unit

2186

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 14 is/are allowed.
- 6) ☒ Claim(s) 1-13, 15, 16, 18, 19, 21, 22 and 25 is/are rejected.
- 7) ☒ Claim(s) 17, 20, 23 and 24 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 January 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 01/08/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_.

### **DETAILED ACTION**

This Office action is responsive to the application filed on 08 January 2004.

Claims 1-25 have been presented for examination.

#### ***Drawings***

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 119 (see [0014]). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 120 (see figure 1). Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet

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should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 8-10 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Referring to claim 8: the claim is directed to a method of making a determination, and then performing a series of steps based on that determination. This claimed subject matter lacks a practical application of a judicial exception (law of nature, abstract idea, naturally occurring article/phenomenon) since it fails to produce a useful, concrete, and tangible result. Specifically, the claimed subject matter does not produce a useful result because the claimed subject matter fails to sufficiently reflect at least one practical utility set forth in the descriptive portion of the specification. More specifically, while the described practical utility is directed to either copying the saved configuration data, or generating the saved configuration data based on the determination, the

claimed subject matter, when it is determined that the reset is not firmware initiated, relates only to making a determination.

Claims 9-10 are also deficient for the same reasons as set forth for claim 8, as they fail to add any limitations that would produce a useful result when it is determined that the reset is not firmware initiated.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Referring to claim 1: it is unclear what steps are involved in the memory initialization. The 3<sup>rd</sup> step of the method involves restarting the computer memory initialization, however there is no previous step to mark where the initialization started. If we were to assume the step of "generating configuration data..." was the first step, since it is the first step recited in the method of memory initialization, then it would appear that after the restart configuration data is generated again. This does not make sense. In light of the specification, the claim will be construed as follows for the remainder of this Office action: the step of "generating configuration data..." is the start of the memory initialization, then after "restarting computer memory initialization", there

will be a step checking for saved configuration data, and if the saved data exists, then it will be copied to initialize the memory.

Claims 2-7 are also deficient for the same reasons set forth above for claim 1, as they depend from claim 1.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 15 and 21-22 are rejected under 35 U.S.C. 102(e) as being anticipated by Zimmer et al (U.S. Patent Application Publication #2004/0103272).

Referring to claim 15: Zimmer teaches a computer system, comprising: a memory controller (see figure 2, element 22); first and second computer memory associated with the memory controller (see figure 1, element 14 and figure 2, element 25); stackless instructions (see [0012]); and stack-based instructions (see [0018]); and wherein: under control of the stackless instructions the computer system initializes the first computer memory for use by the memory controller (see [[0012]); and under control of the stack-based instructions the computer system assembles configuration data

which enables the memory controller to use the first and second computer memory (see [0021]).

Referring to claim 21: Zimmer teaches a computer system comprising: first and second memory controllers (see figure 1, element 12 and figure 2, element 22); first and second computer memory associated with the first and second memory controllers, respectively (see figure 1, element 14 and figure 2, element 25); and firmware comprising stackless instructions and stack-based instructions; and wherein: under control of the stackless instructions the computer system initializes the first memory controller to use the first computer memory (see [0012] and [0013]); and under control of the stack-based instructions the computer system initializes the second memory controller to use the second computer memory (see [0021]).

Referring to claim 22: under control of the stackless instructions the computer system creates a software stack in the first computer memory to be used under control of the stack-based instructions (see [0012] and [0021]).

Claim 16 is rejected under 35 U.S.C. 102(e) as being anticipated by Miller et al (U.S. Patent Application Publication #2004/0064686).

Referring to claim 16: Miller teaches a computer system (see figure 1, element 100), comprising: a memory controller (see figure 1, element 118); first and second memory modules (see figure 1 element 122 and [0026]); a nonvolatile memory space (see figure 2, element 204); and firmware (see figure 1, element 130), under control of

which the computer system: initializes the memory controller to use the first memory module (see [0015]); generates configuration data that enables the memory controller to use the first and second memory modules; saves the configuration data in the nonvolatile memory space (see [0034]); and copies the configuration data from the nonvolatile memory space to the memory controller to initialize the memory controller to use the first and second memory modules (see [0023] and [0030]).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 8, and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schelling (U.S. Patent Application Publication #2002/0083369) in view of Bernhard et al (U.S. Patent Application Publication #2003/0233534).

Referring to claims 1 and 8: Schelling teaches initializing a portion of memory (see [0020] and [0032]), then using the portion of memory to execute instructions to initialize a remainder of memory (see [0030] and [0032]). Schelling does not teach saving configuration data to a non-volatile memory, and then copying that saved configuration data to initialize a portion of memory. Bernhard teaches collection configuration data for a memory system (see [0028]). This data is stored in a non-volatile memory (see [0027], lines 10-12). During a start up or a reset this data is



copied from the non-volatile memory to the devices (see [0035] and [0036]). This allows the computer system to rapidly start up, and allow the operating system to be loaded in to RAM sooner (see [0012]). It would have been obvious to a person having ordinary skill in the art to which said subject matter pertains to have modified the system taught by Schelling, by saving the configuration data for at least a portion of memory that is needed for the system to start the operating system (see Schelling [0039]), this would allow the system to start faster, and to also allow the operating system to be loaded into RAM sooner, as taught by Bernhard.

Referring to claim 2: the combination already teaches the portion of memory comprises at least one memory module (see Schelling [0032] and [0033]); and the saving further comprises storing the configuration data in a nonvolatile memory device (see Bernhard [0027], lines 10-12).

Referring to claim 3: the combination already teaches the nonvolatile memory device is associated with the memory module (see Bernhard [0033] and [0035]).

Referring to claim 4: Bernhard already teaches the restarting comprises a firmware initiated computer memory initialization (see [0035] and [0036]); and the method further comprises: determining whether the computer memory initialization is initiated by firmware; upon determining that the computer memory initialization is not initiated by firmware, performing the generating, saving and restarting (see [0030]); and upon determining that the computer memory initialization is initiated by firmware, performing the copying and using (see [0035] and [0036]).

Referring to claim 11: Bernhard already teaches upon determining that the reset is not firmware initiated, generating and saving the configuration data and causing a firmware initiated reset of the computer system (see [0030]).

Referring to claim 12: Bernhard already teaches saving the configuration data in a nonvolatile memory (see [0027], lines 10-12).

Referring to claim 13: Bernhard already teaches the nonvolatile memory is associated with the portion of the computer memory (see [0028]).

Claims 5 and 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Shelling and Bernhard as applied to claims 1-4, 8, and 11-13 above, further in view of Zimmer et al (U.S. Patent Application Publication #2004/0103272).

Referring to claims 5 and 9-10: the combination of Shelling and Bernhard teach all the limitations of claims 1 and 8 as discussed above, however, the combination does not teach using a software stack to initialize the remainder of memory. Shelling does teach that both the relinquished processors and the retained processors share the system memory. Zimmer teaches using the processor as a temporary RAM to utilize high level programming languages that use stacks and heaps for initialization (see [0021]). This allows for more complex algorithms, and to add more features early on in the boot process (see [0021]). It would have been obvious to a person having ordinary skill in the art to which said subject matter pertains to have modified the combination of Shelling and Bernhard, to use the shared memory and run stack based code, as taught

by Zimmer, which would provide the ability to write more complex algorithms and provide more functionality early on in the boot process, as taught by Zimmer.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Shelling, and Bernhard, as applied to claims 1-4, 8, and 11-13 above, and further in view of Johnson et al (U.S. Patent Application Publication #2005/0193166).

Referring to claim 6: the combination of Shelling and Bernhard already teach all the limitations of claim 1 as discussed above. The combination does not teach more than one memory controller in the system. Johnson teaches a computer system with a plurality of memory modules connected to a plurality of memory controllers (see [0023] and abstract). Providing multiple memory controllers provides the advantage of creating a fault tolerant RAM system, and the ability to hot swap memory modules (see [0030]). It would have been obvious to a person having ordinary skill in the art to which said subject matter pertains to have modified the system taught by Shelling and Bernhard to include multiple memory modules and memory controllers, as taught by Johnson, to provide a fault tolerant RAM system and provide the ability to hot swap memory modules, as taught by Johnson. Shelling already teaches initializing the memory in increments (see [0032]). Therefore the system would be able to initialize one memory controller and its associated memory module, pass it to the operating system, then move to the next memory module and associated memory controller.

Claims 18-19 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zimmer et al (U.S. Patent Application Publication #2004/0103272) in view of Bernhard et al (U.S. Patent Application Publication #2003/0233534).

Referring to claim 18: Zimmer teaches a computer system, comprising: first and second memory controllers (see figure 1 element 12 and figure 2 element 22); first and second computer memory associated with the first and second memory controllers, respectively (see figure 1 element 14 and figure 2 element 25); a nonvolatile memory space; and firmware under control of which the computer system generates configuration data that enables the first memory controller to use the first computer memory (see [0012]), and uses the first computer memory to initialize the second memory controller to use the second computer memory (see [0021]). Zimmer does not teach storing the configuration information in a non-volatile memory, and copying that information to initialize the memory. Bernhard teaches collecting configuration data for various hardware devices in the computer system (see [0030]) and storing that information in non-volatile memory (see [0027], lines 10-12). This provides the advantage of allowing the system to start up faster, and load the operating system sooner. It would have been obvious to a person having ordinary skill in the art to which said subject matter pertains to have modified the system taught by Zimmer, to save the configuration data for the memory to expedite the memory initialization process and load the operating system sooner, as taught by Bernhard.

Referring to claim 19: Bernhard already teaches the nonvolatile memory space is associated with the first computer memory (see [0031] and [0032]).

Referring to claim 25: Zimmer teaches a computer system comprising: first and second computer memory (see figure 1 element 14 and figure 2, element 25); first and second means for controlling the first and second computer memory, respectively (see figure 1 element 12 and figure 2, element 22); a means for generating configuration data that enables the first controlling means to use the first computer memory (see [0012]); a means using stackless instructions upon a firmware initiated reset for copying the configuration data from the storing means to the first controlling means to use the first computer memory (see [0012] and [0013]); a means for creating a software stack in the first computer memory (see [0018]); and a means using stack-based instructions for initializing the second controlling means to use the second computer memory (see [0021]). Zimmer does not teach storing the configuration data. Bernhard teaches collecting configuration data for various hardware devices in the computer system (see [0030]) and storing that information in non-volatile memory (see [0027], lines 10-12). This provides the advantage of allowing the system to start up faster, and load the operating system sooner. It would have been obvious to a person having ordinary skill in the art to which said subject matter pertains to have modified the system taught by Zimmer, to save the configuration data for the memory to expedite the memory initialization process and load the operating system sooner, as taught by Bernhard.

***Allowable Subject Matter***

Claim 14 is allowed.

Claims 17, 20, and 23-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 7 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent Application Publication #2004/0123088: teaches setting a flag, so that on a subsequent boot of the system, the BIOS can determine if the memory initialization routine was interrupted on the last boot.

U.S. Patent Application Publication #2003/0009655: teaches storing configuration data in multiple non-volatile memories that are interfaced with a multiplexer. When booting the system, a selector signal is generated to determine which memory to pull the configuration data from and copy it to the appropriate hardware devices.

U.S. Patent Application Publication #2004/0193860: teaches collecting configuration information for hardware devices in a computer system, and storing the

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data in a memory arranged in a manner related to the contents of the data, then providing this data to a user.

U.S. Patent Application Publication #2003/0065915: teaches looking at a flag to determine which set of configuration data to load.

U.S. Patent #6,571,333: teaches waking a computer system from a sleep state. Upon waking, the processor is issued a hardware reset command, then configuration data for the memory controller is loaded from the non-volatile memory, and then the first memory can be used to execute software.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edward J. Dudek whose telephone number is 571-270-1030. The examiner can normally be reached on Mon thru Thur 7:30-5:00pm Sec. Fri 7:30-4 pm EST.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Kim can be reached on 571-272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Edward Dudek  
December 12, 2006



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12/20/06